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Title of Thesis: Ocean Plastic Waste as Art Material  
Department: Art, Design and Architecture  
Degree Program: ViCCA  
Year: 2017  
Number of pages: 65  
Language: English

## **Abstract**

Through the inventive use of the waste of industrial production and the personal vision of a responsible society, some artists believe that it is possible to influence consumers' attitudes and adopt a more responsible environmental behavior.

Many artists do not only work with plastic waste but their ideals and methodologies are intimately related with a strong personal commitment in the environmental field.

How can they produce new ways to acknowledge phenomena like the plastic pollution of oceans and the hazards it produces to our environment ?

This Master of Arts thesis will endeavor to highlight the critical rethinking that contemporary artists are calling for, for this specific aspect of our consumer's society and the consequences it entails on our future life. It will deal with the ocean plastic waste and pollution problem and artists' role in mediating with the public through their practice and aesthetic vision.

The thesis consists of three parts: a research, interviews with international artists and a production part.

The first part of the thesis targets the significance of waste as material in contemporary art, familiarises the reader with a short history of the origins of plastic and examines the specific problem of ocean plastic waste.

The second part focuses on interviews with artists who use ocean plastic waste as materials in their art practice.

The third part consists of a personal production which combines my diving skills with my art practice and follows the main idea of the whole thesis that is to use ocean plastic waste as artistic material and in so doing to engage a dialogue with the public to raise awareness on this problem.

keywords: ocean plastic waste, environmental art, trash art, plastic waste in art

# **Ocean Plastic Waste as Art Material**

The artistic appropriation of ocean plastic waste as a consciousness raising model

Master of Art Thesis

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Aalto University-MA ViCCA 2017

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# Part One

## **Introduction**

Through the inventive use of the waste of industrial production and the personal vision of a responsible society, some artists believe that it is possible to influence if not change consumers' attitudes and adopt a more responsible environmental behavior. Many artists do not only work with plastic waste but their ideas and methodologies are intimately related with a strong personal commitment in the environmental field. Often, their sites have a direct reference or link to not-for-profit organizations that work to keep the oceans clean or specific sites on waste and pollution. How can artists, philosophers, theorists, activists and others produce new ways to acknowledge or envision phenomena like the plastic pollution of oceans and the hazards it produces to our environment? What are the new strategies and art practices that acknowledge waste and what is the new trash aesthetic?

The practice of presenting waste as an art material can be identified as central to a critique of material excess and the impact of plastic trash presented as trash in art must be critically examined in order to see how productive meanings and forms of it can be made today.

This Master of Arts thesis will endeavor to highlight the critical rethinking that contemporary artists are calling for for this specific aspect of our consumer's society attitudes and behaviors and the consequences they entail on our future life. It will deal with the ocean plastic waste and pollution problem and artists' role in mediating with the public through their artistic practice and aesthetic vision as well as their personal engagement in and synergies with awareness rising campaigns, scientists, researchers and educational projects.

Is the celebration of arts or practices that incorporate or recycle waste simply making us feel better about waste problems that we cannot adequately solve are there ways through art to acknowledge or conceptualise waste that would do more than celebrate such recuperations? I chose this specific topic for my thesis because I am firmly convinced that visual artists have the power to highlight with their work the contradictions and concerns of our society and contribute to deepening the way we think. The issue of ocean plastic waste exists at global level and represents one of the main concerns of our consumer society.

The thesis consists of three parts: a research, interviews with international artists and a production part.

The first part of the written thesis targets the significance of waste as material in contemporary art, familiarises the reader with the short history of the origins of plastic and examines the specific problem of ocean plastic.

The second part focuses on interviews with artists who use ocean plastic waste as materials in their art practice. I researched artists using this material and decided to contact and interview some of them, in order to expand my approach of the use of plastic in art and find out how to involve the beholder in both an aesthetic and environmental discourse. The artists I interviewed chose to work with ocean plastic waste, firstly because of the accessibility of the material which can be found on any shore but mostly because they were shocked by the never-ending amount of garbage present at sea. What I've learned from their responses is that they have the hope and ambition to shift people's mentality through their artistic activism. Some of the interviews were carried out by sending the questionnaire via email, others through Skype and one face to face.

The third and last part of the thesis consists of a personal production which combines my diving skills with my art practice and follows the main idea of the whole thesis that is to use ocean plastic waste as artistic material and in so doing to engage a dialogue with the public to raise awareness on this problem. This being particularly urgent in countries such as Greece where eco consciousness is not fully developed, I believe that raising awareness by starting at local level and small communities is key to spread best practices and an improvement in consumers' behavior.

## Waste Reinvention

Contemporary art can be made with almost anything. Its poetic language has acquired an immensely wide spectrum of expressive possibilities which include any medium. The new experiments in contemporary art are not to be seen as an end to itself, but rather as the reflection of our times where consumption, information, knowledge go hand in hand with memory, individualism and awareness. So, it could be said that anything can find its place in a work of art, even what we could consider common, banale, discordant or clashing.

Contemporary critics are eager to laud sustainability and to celebrate modern and postmodern arts and practices that make inventive use of the wastes of industrial production and the trash of consumer capitalism. These possibilities provide compelling ways to grasp late capitalist culture because they seem to offer a potential answer to an almost unimaginable problem: the ceaseless, ubiquitous, and disastrous production of waste.

On a practical level, contemporary artists have the freedom to invent and create with almost no boundaries and challenge preexisting artistic frontiers paving the way, as Arthur Danto put it, to a change of society as a whole. In the diversity of the medium used, there seems to be one principle in common to all artists, that of bricolage. This term was used by Claude Levi-Strauss who considered it an ancestral capacity of man in combining the leftovers of a culture and challenging the definition of things (Levi-Strauss, p. 33). Bricolage is to be seen here as the composition of a repertoire of materials, ideas, images and references which were not especially intended for art.

Artists from the dadaists to today's conceptualists often work with trash. Massimiliano Gioni writes about collage, that fundamental technique of engaging with the leftover objects of consumption: "collage is a dirty medium, infected as it is by waste. It appropriates residues and leftovers, trafficking with what is deemed to be valueless". But of course, all of that "valueless" waste will work for us again as sense and beauty, the impossible equation again perfectly balancing: "it is an attempt to make sense of the world, to structure it, while still preserving its absurdly cacophonous, at times, sublime multiplicity" (Gioni, p. 65).

The dictionary definition of *collage* is "a work of art created by pasting on a single surface various materials not normally associated with each other such as newspaper clippings, theatre tickets, fragments of an envelope, etc." It was first experimented by

Picasso and Braque in 1912 with the *papiers collés* and is considered to be the turning point in the evolution of Cubism and Modernism: a pictorial art that underlines its abandonment of perspective and that considers the surface as autonomous (Greenberg p.76-9).

*Assemblage* is its three-dimensional cousin, a work of art produced by "organising and combining into a unified whole a group of unrelated and often fragmentary and discarded objects".

The term assemblage was first used by William Seitz in order to define a whole series of artworks presented at the MoMA exhibition in New York in 1961 with the title "The Art of Assemblage". There is however no exact date to pin to the beginning of this artistic expression which has been saluted by Dadaism as a form of non-art and by Surrealism as an artistic expression of spontaneity and exploration of the unconscious.

The process of artistic creation consists of a dialogue with the model, the medium or the user. In the first instance we refer to the Western conception of the visual arts, in the second to the primitive arts and in the third to the arts and crafts. This being a simplification since every type of art implies all three of these aspects but in variable proportions, Levi-Strauss, op. cit. p.43. Alan Kaprow's article, "The Legacy of Jackson Pollock" anticipated the dissolution of barriers between life and art, he wrote that "Objects of every sort are materials for the new art: paint, chairs, food, electric and neon lights, smoke, water, old socks, a dog, movies, a thousand other things which will be discovered by the present generations of artists. Not only will these bold creators show us, as if for the first time, the world we have always had about us, but ignored, but they will disclose entirely unheard of happenings and events, found in garbage cans, police files, hotel lobbies, seen in store windows and on the streets, and sensed in dreams and horrible accidents. [...] -all will become materials for this new concrete art."

Beauty is, then, a compact, or contract between the beautiful being (a person or thing) and the perceiver. As the beautiful being confers on the perceiver the gift of life, so the perceiver confers on the beautiful being the gift of life. Each "welcomes" the other: each—to return to the word's original meaning—"comes in accordance with [the] other's will."

The multiple gesture of the artist involving the act of selection (choosing an object from among many), designation (as a work of art) and recontextualization leads to an increased freedom of choice but can also be seen as a form of pressure. A variation is the use of unexpected materials and when Rauschenberg puts dead things into his

pictures, he brings them back to life: he gives them a new life in his magical, mysterious, enigmatic art ( Johnson, p.138).

Some practices of collection and creative reuse in collage, collections, and found-object arts create stunning acknowledgements of the sheer and generally unacknowledged scale of waste. However, endlessly celebratory emphases on isolated examples of re-use and recycling risk becoming profound disavowals, as if such reuse solved the problem and absolved us of responsibility.

Slavoj Žižek writes a pivotal critique of our dreams of recycling: “The idea of ‘recycling’ involves the utopia of a self-enclosed circle in which all waste, all useless remainder is sublated: nothing gets lost, all trash is reused”. For Žižek, the real ecologist would develop a mode of thought capable of “accepting waste as such...the inertia of rotten material that serves no purpose”.

Slavoj Žižek addresses the problem of the utopian belief in the recycling cycle as a process that eliminates all waste with his observation that not all waste is recyclable, because the system always creates unusable waste. Žižek notes:

"This is why the properly aesthetic attitude of the radical ecologist is not that of admiring or longing for a pristine nature of virgin forests and clear sky, but rather of accepting waste as such, of discovering the aesthetic potential of waste, of decay, of the inertia of rotten material that serves no purpose. "

For Žižek, society’s collective faith in recycling to solve the problem of the end point of consumer capitalism—excessive consumption—should be recognized as a myth, for it denies that unusable waste always exists. Already in nature itself, there is no circle of total recycling, there is un-usable waste.

Thinking about waste without the comforting fictions of perfect recycling is more important than ever as global consumerism grows ever larger. Artists, activists and academics are trying to find new, inventive, and compelling frames to challenge us to acknowledge waste.

The juxtaposition of diverse objects and materials in a poetic association led French philosopher Jacques Rancière to speak about an "evidence of a common history rather than a shock of the heterogeneous" (Rancière, pp. 33-4). From a philosophical point of view, the assembling of different materials in a work of art can imply that art, as life, consists of many different sherds that are put together in an order intimate to the artist so as to present a comprehensive world view. This practice has become an ideal container of many ideas which draw inspiration from materials and discarded objects of real life producing a work of art which feeds on the rejects of everyday life.



Over the last few decades, a new wave of international artists has emerged who use humble or unconventional materials transformed through original methods to create work that is aesthetically challenging and often environmentally engaged. Many of them repurpose utilitarian materials and plastic waste transforming them in aesthetic and thought-provoking results using techniques such as collage, assemblage and installations.

The artists may be drawn to certain materials for a variety of reasons, be they aesthetic, emotional or intellectual and they choose to embody found objets and detritus in their works in order to dramatize the huge problem of waste in our consumer societies and make people aware that the waste we create comes back to us. They are sometimes called *trash* or *junk artists* and have acquired a widespread popularity especially in the social media thanks to their artistic creativity combined with a strong environmental consciousness. They share a common interest in giving a meaning to detritus of our consumer culture and preventing it from becoming invisible. This transgressive attitude of making trash visible and aesthetically suitable forces us, yet again to question the dividing line between aesthetic conventions and real life.

The work of art becomes an object and is made of objects. It maintains its representative potential but can nevertheless acquire a meaning of its own. It could be said that the common, humble, poor material is redeemed through the artistic language and acquires a new narrative status.

If we consider the artist's attitude towards the found object and his/her deliberate choice to insert it in an artistic process, the precondition appears to be the relationship with the object itself which always seems to depend on the personal experience. C. Levi-Strauss considers this methodology a process of combining left-overs from a culture whereby the *bricoleur* interrogates "all the heterogeneous objects of which his treasure is composed" (Levi-Strauss, p.32). He refers to the "Treasury of Ideas" by Hubert and Mauss where magic is described not as a superstition but as the creative capacity of man of doing things. Max Ernst also talked about an alchemic composition of various elements put together by the artist who becomes an alchemist-magician.

## Trash in Art

Trash has had a place in avant-garde art since the early twentieth century, when Marcel Duchamp introduced the idea of the readymade: any slightly modified, often discarded, manufactured object selected and displayed as an art work. For many art historians and cultural critics, the subject of trash and art is associated with discrete art objects or installations made from waste material sourced from junk shops or the street that are transformed into works of art through their alteration and presentation in a gallery, where anything can become a commodity. The reuse and recycling of waste materials have become conventional economical practices for artists, but once transformed into an art commodity, what kind of effect does the work have on viewers? In gaining some sort of aesthetic value, does trash no longer signify trash? Does the form of its representation register for the viewer on the same level as trash, or has it become something else?

One perspective on art and trash that considers these questions can be found in the work of the social anthropologist Michael Thompson. Writing in the late 1970s, he addressed the status of art and rubbish in relation to production and consumption. His categories of “durables” (valued objects held in museums), “rubbish” (discarded objects), and “transients” (objects in circulation that are not yet classified as either durables or rubbish) identified different states of value granted to objects, states that were changeable and dynamic and could be created and destroyed. Thompson takes the example of the cycle of life of antique furniture which was once new and valuable, it became then out of fashion and was sold to junk dealers who resell it as costly vintage items.

Thompson’s three categories have an affinity with Stefanos Tsivopoulos’s *History Zero* (2013), a work commissioned to represent Greece in the 2013 Venice Biennale. The tripartite film installation presented three characters connected by collecting: an immigrant collecting scrap metal in a shopping cart, an artist who collects images and profits from the immigrant’s scrap metal assemblage, and a wealthy woman collector who makes paper flowers out of bank notes which she then throws away; the shopping cart full of metal objects appears on an exhibition invitation in one of her drawers. The status of the shopping cart changes in the three episodes: first it is rubbish, second, it becomes a transient object in circulation, and finally, it becomes a durable. *History Zero* explores the role of money and collecting, but more importantly it draws attention to the value of trash and the contested nature of trash-making in relation to the fields of consumption and production.

Thompson questioned the stability of the durable object category, however, and its “total removal from circulation” through its accession into the museum and gallery by asking if the system “carries within it the seeds of its own destruction”. Although Thompson was highly aware of concurrent developments in auto-destructive art and conceptual art when he was writing the Rubbish Theory, the larger implications for destruction and decay in the art of today remain to be examined.

One subset of this field is trash that retains its status as trash, and when destruction or some kind of transformation is involved, it registers beyond the recycled, commodified object. Artists who present their work as rubbish, in a state of rubbish, or treat it as rubbish and throw it away by destroying it inevitably invite a stage of destruction, either unintentionally, from the slow decay inherent in its retention, or purposefully, through acts of breaking, destruction, and self-destruction. These types of works engage with the viewer in a different way—as compared to the commodified object—by acknowledging the volume of the waste left behind in daily life, and by conceptualizing the fate of the material objects and products as ephemeral and redundant.

Whether preserved, partially or completely destroyed, waste presented as waste can address complex questions about the ideal future for, and practical problems of material life. Unusable waste is only beginning to be acknowledged as a material; its ideal aesthetic future has yet to be realized.

### **A Short History of Plastic**

Plastic as we know it today has only been around for approximately a century. Other materials have been used since prehistoric times such as vegetal resins used in the Neolithic to assemble hunting tools or latex used by the Maya's to shape the balls for their ballgames. Since the industrial era, chemists and scientists attempted to ameliorate the vegetal rubber substance in order to create synthetic plastic originating from natural fossil resources. The function and reputation of plastic has changed over the years: it was the defining material of the 20th century and synonymous of modernity and design.

The word "plastic " can evoke strong responses in people- they may love it or hate it. Plastic has been and is playing a contradictory role in the 20th and 21st centuries- it can save lives in the form of a PVC blood bag for a transfusion or spoil the landscape when disposed of as rubbish. Roland Barthes called plastic "a miraculous substance...a transformation of nature".

Some historians consider Parkesine the first man made plastic. It was patented in 1862 by Alexander Parks and was a new material obtained through the dissolution of cellulose in alcohol and nitric acid. It is often called synthetic ivory and was used to produce billiard balls but was soon found unsuitable for that purpose because too fragile but very suitable for many other objects such as artificial teeth, buttons and pens. In 1907, Belgian chemist Leo Baekeland made a mistake in his experiments and created by pure chance a thermo resistant resin capable of preserving its shape at high temperatures. Bakelite was a new material made of phenol and formol chiefly used for electrical equipment such as telephones.

Formica, patented in 1918 was the trade name for a range of decorative laminates used mainly for furniture. It was made of paper sheets or cloth impregnated with resins.

Polyethylene, discovered in 1933 was initially produced purely for the military as an insulating material for radar cables. After WWII new uses were developed such as washing up bowls, buckets, dolls and bottles. Polyethylene waste was manipulated by Earl Tupper to manufacture Tupperware, patented in 1947 and which became one of the most familiar types of plastic objects in the works since these new containers revolutionized kitchenware.

A key plastic entering on the scene in the 1930s was nylon used as a replacement for expensive and fragile silk.

Easy to modify, PVC (polyvinyl chloride) was first recorded in France in 1835. During WWII, PVC was a significant material used for electrical insulation. In the 1960s PVC started being used for structural applications such as pipes, guttering and window frames.

Introduced in the 1930s, Polystyrene is a lightweight, easy to shape plastic, good for insulating and popular for throwaway products. Food chain McDonald's originally adopted expanded polystyrene packaging for its takeaway food but growing public anxiety in the 1980s about the increasing litter and the slow biodegradability of many plastics made them adopt paperboard packaging.

Silicon is made of silicon combined with carbon and can be used for paints, resins, glues and soft gels. It was first used in the medical fields for a breast implant in 1962. In fiber-form, polyester makes quick-drying, wrinkle resistant fabrics. It was the material of the 1970s modern man and through high-tech methods was developed into various uses.

"The invention and proliferation of plastics was driven less by a need to develop new technologies (although WWII boosted the use of plastics greatly), than to simply replace the objects we already had- but at a price and in a quantity that helped to insatiate a middle class defined by consumption" (Davis, p.349).

Starting with the 1950s, mass consumption and diversification created a strong demand and confirmed the usefulness of the plastic industry. Plastic materials were essentially produced from petrol and natural gas by the petrochemical industry. In 1973, the petrol shock marked a turning point- after being considered a cheap, throwable substitute for more noble materials, plastic started being considered a sophisticated and highly technical material. Awareness started to develop about the environmental consequences, the use of natural resources and recycling. New plastics are being developed in many fields such as medicine, aerospace, electronics and engineering. Bioengineering is a field in which new plastic materials have been developed to improve our quality of life- acrylic corneas, polyester for artificial veins, silicon for implants and artificial hip joints. Scientists are working on new sustainable sources of plastic to replace oil. Plastics from plants are not the ideal solution since they require land to grow, water and energy to process them but they could reduce our dependence on oil. Moreover these new plastics would degrade into compost thus completing the natural cycle and reducing the impact on the environment.

### **The Aesthetic Potential of Waste**

In contemporary consumer cultures, it is an affective orientation towards objects that pulls consumers into the future. As Lauren Berlant writes, “when we talk about an object of desire, we are really talking about a cluster of promises we want someone or something to make possible for us” (Berlant, p.71-89). Through objects, we pursue the promises of an ever-elusive happiness. Theorists like Berlant focus largely on the fantasy objects of the good life—the family, the lover, the child, the job, but also on all those objects that are better described as stuff: a house, a new car, an appliance, a shirt, a pair of shoes, a gun, a toy, a phone, a bottle of water—that whole object world that we assemble into a lifestyle. Those concrete objects, and their inevitable fates as trash, are under scrutiny. What happens when those concrete objects that promised us a future are suddenly found to be empty in our present? What happens when objects that promised us a future are cast away and forgotten as we reach towards some new, seemingly better promise?

The problem, of course, is that these failed, empty objects do not disappear. More and more fabricated from plastics, the objects of our everyday desires persist eternally. They are essentially immortal, and have a way of coming back to haunt us. There is a terrifying dimension to this that seems to put us in touch with the death-drive at the

heart of capitalism, in which consumers are enjoined to the endless repetition of buying objects that can never produce the wholeness they promise. Once the newly bought objects are found empty, the cycle continues.

For the consumers of the global North, the great hope seems to be recycling. But thus far, recycling is not doing enough.

Single- use, throw-away packaging is one of the major plastic pollutants.

"Although packaging has become fundamental to extending shelf-life and the quality of food, it has also become a major source of solid waste". (Hawkins,p.66)

Tom Fisher is a packaging designer. He has drawn up a list of things people do with the packaging they encounter in their everyday life:

Card-board box as storage

Carrier bags as bin layers

Carrier bags as dog poo bags

Coke cans for paintbrush soaking

Decorative metal tin box for sewing storage

Ice-cream containers for pet food storage

PET bottle as bird feeder

Plastic trays for fruit and veg storage

Wine bottles as candle holders

Etc.

"While there is plenty of information about the waste we produce, much less is known about people reusing spontaneously packaging that would be otherwise go in the bin" (Fisher and Shipton, p.6). The re-use of packaging can significantly contribute to reducing single-use food packaging as a material that enters the waste stream.

While public relations campaigns are relentless, the sheer amount of plastics being produced overwhelm any attempt to systematically capture and reuse them. In 2012, the US alone produced 32 million tons of plastic waste, and only 9% of that was recycled. Tanya Leal Soto's recent documentary, *Plastic Paradise: The Great Pacific Garbage Patch*, makes us realize the scope of the problem. In the middle of the ocean, the Great Pacific Garbage Patch is a swirling vortex of ineradicable plastic.

World Oceans Day is a global day of ocean celebration and collaboration for a better future. This year's focus was the prevention of plastic ocean pollution and events took place worldwide in order to learn about the challenges facing our oceans, clean up local beaches, and get involved in marine conservation efforts.

Marine plastic is a special threat because it does not fully degrade, instead breaking down into smaller and smaller pieces called micro plastics. Ocean dwellers, such as sea turtles and fish, can mistake the debris for food, leading to digestive issues and starvation.

Chris Jordan is a photographer. He has documented the effects of plastic on albatross chicks. He found these baby albatross birds in the Midway Atoll in the Pacific Ocean. All of the baby albatrosses were dead and decaying. Jordan took photographs of their dead remains. The pictures are shocking to see. Inside the skeletons there are many plastic pieces. The mother birds brought the plastic back to their nests, thinking it was food. The birds starved, because they ate this plastic instead of real food.



Can we learn to think waste as waste?

In “Trash as Trash as Art: Reflections on the Preservation and Destruction of Waste in Artistic Practice,” Stacy Boldrick reflects on the creative reuse of discarded objects in contemporary art practices. Boldrick discusses artistic acts of destruction that challenge the material conditions of discarded objects through several examples of art as trash, culminating in a poignant reflection on her creation of a self-destroying sculpture. Boldrick explores the intentional destruction of trash; she writes, “many artists incorporate destructive acts into their practice in order to address the ephemerality of the material world, but they also do it [...] to retain a sense of the object’s original value and purpose.” Rejecting the popular celebration of art practices that incorporate or recycle waste in order to create something other than trash, Boldrick suggests that the acknowledgment of trash as itself, in its ephemerality and expendability, presents a more compelling alternative for the work of art.

### **Plastics: a Toxic love?**

"The prehistory of plastics starts in the form of petroleum. Crude oil formed 3,4 million years ago in rocks under the Caspian Sea comes to rest on the bed of the Atlantic (as a fragment of a plastic container) for the next 10.000 years. After digging up the remains of ancient plants and animals in the form of fossil fuels, we are now stuck with the consequences of these molecules which refuse to go away and are unable to decompose" (Marriott, 2013, p.180-1).

Because of its combination of unrivaled properties and low cost, plastic is the workhorse material of the modern economy. It is unique and has many qualities but it can soon become problematic if we are not capable of disposing of it responsibly. Its use has increased twenty-fold in the past half-century, and is expected to double again in the next 20 years. Today nearly everyone, everywhere, every day comes into contact with plastic — especially plastic packaging.

Plastics and plastic packaging are an integral and important part of the global economy. Plastic production has surged over the past 50 years, from 15 million tonnes in 1964 to 311 million tonnes in 2014, and is expected to double again over the next 20 years, as it comes to serve an increasing number of applications.

An estimated 32% of plastics escape the collection system globally. Plastic packaging is particularly prone to leakage due to its small size, high rate of dispersion and low



residual value. Today, at least 8 million tonnes of plastics (of which estimates suggest that plastic packaging represents the majority) leak into the ocean — just one of the ‘sinks’ for leaked plastics — every year. Plastic that leak into oceans and other natural systems remain there for centuries resulting in high economic costs and causing harm to natural systems.

Ocean plastic is today's breakthrough material. Pharrell Williams has used it to produce a range of clothes, Adidas has launched a range of shoes made of yarn and filaments reclaimed from illegal deep-sea fishing nets and other ocean waste. Adidas went into partnership with Parley for the Oceans, an initiative that encourages creatives to repurpose ocean waste and raise awareness of the growing issue.

Italian studio Arabeschi di Latte and curator Jane Withers have installed a bar at London's Selfridges that invites visitors to "imagine life without the plastic water bottle" as part of an exhibition about ocean plastic. The blue-speckled Water Bar is part of the Project Ocean exhibition, which intends to raise awareness of the environmental impact of plastic accumulating at the centre of the world's largest bodies of water.

Gay Hawkins' book *Plastic Water- The Social and Material Life of Bottled Water*, interrogates how branded bottles of water insinuated themselves into our daily lives. Water has become an economic good, a commercial product and is no longer a common resource. From the invention of the PET bottle in 1973, the amount of plastic water bottles has been exponentially increasing. Many people drink bottled water because they believe it to be of a higher quality, cleaner and better tasting, but that is not necessarily true. In the western industrialized world, municipal tap water is subject to daily tests and analyses.

Imagine a plastic bottle. Maybe it is a plastic bottle filled with Coca-Cola, or water, or another cool good-tasting drink. Imagine that you finish the cool drink. You throw the bottle away. Along with other waste, this particular bottle travels to the ocean. The sunlight and water work together to break the plastic bottle into smaller and smaller pieces. The ocean's currents carry the pieces to many different places. But after a time, it gathers with other plastic waste. But what happens to it after that? It stays in the ocean, floating. There, it harms sea animals and pollutes the water.

Millions of tons of plastic waste have already gone into the world's oceans. This waste comes from countries all around the world. It may come from land or boats. But all of it comes from people. Plastic waste is not a natural part of the sea.

When plastic enters the ocean, some of it sinks to the bottom. Other plastic starts to photo degrade. That is, the sun and ocean water break the plastic into smaller and



smaller pieces. But it never disappears. The particles of plastic are extremely small. People cannot see them. But scientists can test the water and find the plastic particles in it.

Shine Takada from Tokyo Metropolitan University asks volunteers to collect and return by post pellets and plastic fragments that they collect on shores across the world. Since 2005, his platform International Pellett Watch has generated maps that document the spread and concentration of plastics in seas worldwide.

Max Liboiron is a scientist, activist and artist. She is assistant professor in geography at Memorial University in Newfoundland, Canada. She directs CLEAR (Civic Laboratory for Environmental Action Research), a feminist, marine science and technology laboratory in environmental monitoring of plastic pollution.

"Plastics and their chemicals have been found in every ocean of the world; there are plastics everywhere both floating and submerged and tend to cumulate in gyres in the oceans but cannot be seen from the surface of the sea.

Scientists are amongst the most radical people on how to deal with plastic pollution even more than some NGOs and environmental organizations. They claim that plastic waste should be classified as hazardous because of the chemicals and toxic products it contains. Thus plastic in the ocean should fall in the category of hazardous waste."

She claims that the cleaning up of these plastics is just a deferment in time and space of the problem and not resolute of the plastic waste itself. Liboiron says that almost all significant interventions have to happen at the economic level where profit is no longer the primary goal and that most of the solutions are technical and would have to be shared worldwide to have a real impact.

She also uses her scientific perspective in her art practice in order to propose models of sustainable economies and to raise awareness on the problem of plastic waste.

Much of this plastic waste gathers in areas of the oceans called gyres. A gyre is an area of water where the ocean currents naturally move in a giant circle, or spiral. There are 5 major gyres in earth's oceans. The most famous gyre full of plastic waste is the Great Pacific Garbage Patch. People cannot see the Garbage Patch from satellite photography. They may not even be able to see it when they are in it! Many of the plastic pieces in the Garbage Patch are extremely small. They do not just float on the surface. They are concentrated in the water.

According to the latest news, an other great garbage patch has been discovered in the Pacific, off the coast of Chile.

Because the plastic pieces are so small, the Great Pacific Garbage Patch is difficult to measure. But it is very big. Scientists estimate that the Garbage Patch covers up to 15 million square kilometers.

Stiv J. Wilson is the policy director at the Five Gyres Institute. Five Gyres is a not-for-profit organization that works to keep the oceans clean. Wilson says simply:

“The solution starts on land.”

The problem is, that at this time, we are putting this plastic in so quickly. The amounts are so big that it is going to be almost impossible for us to think about cleaning up as fast as the plastic is going in.

In *Accumulation- The Material Politics of Plastic*, the authors Garry and Hawkins examine the material force of plastics as raw material, object and process.

"More than any other material, plastic has become emblematic of economies of abundance and ecological destruction. The indeterminate and harmful materialistic of plastic are now surfacing and demanding urgent attention. Over the last ten years, there has been increasing public controversy about the endocrine-disrupting effects of plastic and about the ethical and environmental impacts of the global spread of disposable plastic cultures".

So what is the solution? The Five Gyres website suggests some easy ways to stop plastic pollution. Start by buying less plastic. Instead of using a plastic bag to carry groceries or food, bring your own bag instead. For drinking, use a cup you can fill again and again. But there is more to do too as Wilson writes:

“The next steps are to get involved in cleanups. Get involved in campaigns to get rid of problem products. Demand that companies take responsibility for their products after people use them. There is a lot to be hopeful for - even if the real solutions do not seem exciting. But if we all take part, there is hope.” But it has to be said that there is also the reverse of the medal and that is that industry tends to make waste structural so that it has a future in trash.

# Part Two

## **Interviews with artists**

Artists and activists have taken notice of the waste problem, using marine plastic waste as a medium and material to create artwork. Although often aesthetically beautiful, these works point to the concerning profusion of these plastics in our environment.

Having researched artists using plastic waste as art material, I decided to contact and interview some of them, coming from different countries and backgrounds, in the hope to learn from their experience in the field.

The interviews were conducted either by email or meeting the artist personally. I prepared a two pages long questionnaire, but the questions varied slightly depending on the practice of each artist and his/her personal environment. They had the freedom to respond to whichever question they felt comfortable about and to add any detail that they might consider useful, but they could also ignore questions that felt irrelevant to their practice.

The questions I asked them came up naturally to me, as I was curious to learn about their intentions in using such a controversial material, but also the artistic process involved. It seemed to me that it was also interesting to find out more about how they felt about the public's reaction and if the artists were environmentally conscious. The answer to this last question is definitely yes, meaning you can't make art out of ocean plastic waste and then throw your PET bottle in the sea.

The following artists accepted to be interviewed about their projects and art practices. Some of them are members of Discard Studies, an international platform of social studies on waste, pollution and externalities. Others were among the artists presented last year by Time Magazine to celebrate World Oceans Day. They are representative of a wider category and come from various countries with different backgrounds but have all in common a strong engagement in favor of the environment firmly anchored in their art practices. These interviews are a research I conducted in order to deepen my own ideas about the usage of ocean plastic waste. It is not a qualitative research based on interviews about artists using plastic waste.

Judith Selby Lang and Richard Lang- US: interviewed from their studio in Kehoe Beach, California (Skype)

Kelly Jazvac- Canada: interviewed via email

Julia Barton-UK: interviewed via email in the Shetland islands, she had no internet connection and was difficult to reach via Skype

Jean Michel Faudemer -France: interviewed personally in his gallery, Galerie 3F, Paris

Tuula Närhinen-Finland: interviewed via email in her studio, Harakka island

John Dahlsen-Australia: interviewed via email in his studio, Byron Bay, New South Wales

Andy Hughes -UK: interviewed via Skype, didn't have much time to answer the questions, as he was travelling for work

Aurora Robson-US: interviewed via email, New York

Interview with Richard Lang and Judith Selby Lang, "About One Beach Plastic" Project

Since 1999 Richard Lang and Judith Selby Lang have been visiting one kilometer of Kehoe Beach in the Point Reyes National Seashore, Ca. US. They have rambled this one remote beach for hundreds of times to gather plastic debris washing out of the Pacific Ocean.

By carefully collecting and "curating" the bits of plastic, they fashion it into works of art that show matter-of-factory and with minimal artifice, the material as it is. The viewer is often surprised that this colorful stuff is the plastic junk of our throw-away culture. By deepening their practice, they found, like archeologists, that each plastic bit found opens into a pinpoint look at the whole of human culture and has a story to tell.

"We really like to say that this is a love story, from our first date at Kehoe Beach, a whole life has unfolded. We decided that we were going to the beach as often as we could and see what we could collect in one year. We started specializing in one item which was juice lid caps which are colorful and ubiquitous and we thought to make a trophy of our days out on the beach. In one year we collected 2 tons of these caps and we made a trophy fish out of them.

"At that time the information about the North Pacific Gyre started to come through. It is an area that some describe as twice the size of Brazil. The ocean currents conspire

to create a giant swirl which pulls in all the plastic which doesn't disintegrate, it degrades from the sun and gets smaller and smaller. So what the Gyre really is, is a giant soup of these little plastic particles."

"Are we cleaning the beach. There is no way that we could clean the beach, we are curating the beach. We are picking up the things that we really like and go out there with a shopping list: say we need more disposable lighters or a new swath of red or green. We limited ourselves to this one little kilometer of beach because like a holographic pinpoint we want to talk about this one little place as the place that stands as a marker for the whole planet. In about 2 hours we can collect probably more than we can carry back, usually 30-35 kg. It is an exercise in pattern recognition if you find a green thing and then understand that it is an agricultural pull-tie for trellising up grapes or bubble blowers or balloon nips, plastic hair curlers have come up and we even found a lighter that has come all the way from Korea. We find plastic that dates back to the 1940's and 1950's when it really began its heyday. Some plastic toys found go back to that period, like little cars and trucks. We found in a book a picture of one of the little trucks we found on the beach and it was last made in 1949."

"We bring it back, we wash it and then we begin a sorting process which is one of our great pleasures: sometimes it implies an investigation process in order to identify certain objects. We found small red plastic bars and didn't know what they were: they are cheese spreaders for Kraft handy snacks and we started a dialogue with Kraft on this kind of issues. The idea is that plastic in itself is not evil, but there is an evil which is single-use plastic: to scrape up your cheese, put it on a little cracker and then toss it away. This is a ridiculous use of material.

It is very difficult for people to visualize the problem of plastic pollution. One statistic says that there are 46,000 pieces of visible plastic in every square mile in every ocean on the planet. That is an inconceivable number. So we have decided to count out what is in ten square city blocks and are going to present 4600 pieces of plastic suspended as if they were floating in the ocean.

People that make things, let the material speak and this plastic has really spoken to us and has become a prime focus. We are inspired by Kandinsky, Klee and Matisse and this plastic seems to lend itself to these kinds of artworks and it is a beautiful material to work with. People comment on our works and find them beautiful and enticing. The opposite of beauty is not ugliness, the opposite of beauty is indifference and we are trying not to be indifferent about the world."

*When did you start working in the field of ocean plastic waste?*

Since we came to this work after 30 years of independent studio work we each have a story...

Richard:

In 1972 as a grad student in sculpture I was making large-scale works out of aluminum. The Eco-movement was just gathering steam and I had a despairing feeling of adding more material to a crowded world. For my MFA thesis show, I decided to gather remnants of wood, canvas, rope gleaned from the other grad studios that I used to create a room-sized assemblage.

Twenty years later during a walk on Kehoe Beach, I found the plastic mess was appalling. The sheer quantity ruining a favorite beach. One day my son and I picked up seven large garbage bags full that we tossed in the truck to bring home to throw “away”. Sorting through this debris we found that many pieces carried a peculiar beauty in patina and subtlety of color. So began a perception and appreciation of the stuff as an art material.

Judith:

As a child I aspired to be a paleontologist. Every day after school with friends I would mine the white limestone cliffs in the woods near our house. We always hoped to find a dinosaur and spent untold hours excavating a mound where we were certain we would discover a skeleton. We were convinced that the bowl shaped recess in a boulder was an impression left by a dinosaur egg.

Yes, we had our imagining but we did in fact unearth many small fragments and crustacean and clam shells.

Some 100,000 years ago Dallas Texas was underwater covered by the Western Interior Seaway — and today we worry about sea-level rise?

The Natural History Museum of Dallas has an excellent display of fossils and ammonites from the surrounding area. So I would go to look and identify what we were digging up. I would longingly gaze into the specimen vitrines and wish upon wish that someday one of my fossils would be on display with a label attribution that had details about the rarity of the find; the latitude and longitude of the site, notes

about the Era, Period, Epoch and yes, across the vast expanse of geological time would be MY name as the collector.

Fast forward some 55 years, I now find myself to be an artist/archeologist mining the beach in search for remnants of plastic, future fossils from the Plasticene.

*Do you collect these objects personally or do you also ask other people to gather them for you?*

In the interest in creating a graspable metric, we have devoted ourselves to just 1000 yards of one beach that we have attended to hundreds of times. We are just two people who have collected thousands of pounds of plastic from this small stretch of coast.

*Is there a first choice already made on the beach or does it happen only afterwards in your studio?*

We live in West Marin not far from the Pacific Ocean. We appreciate fresh air and exercise and have, by proximity and by predilection, found Kehoe Beach, a perfect place to enjoy both. In the winter, buffeting storms at sea flush out great quantities of plastic depositing it in swags entangled with the seaweed. The beach is a mess. Because there is so much trash we could not really pick it all up so we have learned to be discerning. We call what we do “curating” rather than cleaning. We hope by advertising the beach as a great place to gather free art supplies others will get the drift and be out there with us vying for the best stuff. We express the fun in the finding, that way things get cleaned up and we all get some interesting art to look at.

The plastic is brought home from the beach, washed and sorted by color and sometimes by kind creating a kind of palette. We think of the pieces as strokes of paint and as painters begin the process of laying out a composition on a copy stand to be photographed. Many of our arrangements are inspired by Wassily Kandinsky’s work that brought the idea of abstraction into the modern era. That along with riffs from jazz and the improvisational music of the likes of Miles Davis enliven our creative process. We photograph and print our work at Electric Works in San Francisco. We use a scanning back mounted on a 4x5 Linhoff camera to make a 128 mega-pixel file. It feeds directly into the computer allowing us to arrange and



rearrange the pieces of plastic until we get the ensemble just “right.” We like the idea of photographing the “stuff” so that we keep control of the material. We recycle the plastic pieces back into our inventory. We usually don’t make objects that may potentially re-enter the waste stream.

*What kind of poetic/aesthetic approach do you have with the objects you collect: they bring up memories, they have an immediate visual impact on you, they fit with your project?*

Many of our arrangements are inspired by Wassily Kandinsky’s work that brought the idea of abstraction into the modern era. That along with riffs from jazz and the improvisational music of the likes of Miles Davis enliven our creative process.

<http://plasticforever.blogspot.com/2014/01/influences.html>

*What weights more in your works: the modern creative archeology aspect or the engaged outcry against marine pollution?*

Our deepest held conviction in this project is to make the work beautiful. Not beauty in dialogue with its apparent opposite ugliness, because the facts are ugly, but beauty that can hold the gaze of the viewer long enough to interrupt the mind-numbing drone heard daily regarding the dire state of the planet. Sometimes beauty can be a call to action. Here the call to action is to follow some simple rules of planetary housekeeping, but in a larger sense, the call to action is to follow those strange voices of inspiration, of compulsion, for the real opposite of beauty is indifference.



Numerous pieces of plastic trash in the Lang’s workshop  
© The Marine Mammal Center

*How do people react to your works? Is their first reaction an aesthetic one or are they more concerned with the ecological aspect?*

We are artists first and use the power of images to incite the conservation conversation. Through our work we invite people to take a look at how plastic has pervaded every aspect of our lives and how the choices we all make can make a difference.

On Christmas Eve 1968, Earthrise, the most powerful photograph of the 20th Century, was taken by astronaut Bill Anders from the Apollo 8 spacecraft. It was the first journey humans had made out of Earth's orbit and the first time we had seen our planet from outer space. This image was an undeniable reminder of our commonality as citizens of planet Earth. Just one month after, photographs of oil-soaked birds and surfers emerging from waves of crude oil were in the headlines and cover stories documenting the horrible Santa Barbara oil well blowout of January 1969. Those distressing images were undeniable reminders of the human impact on planet Earth.

When those photographs came across the newswire they ignited the environmental movement — and prompted the establishment of the Environmental Protection Agency, the Clean Water Act, and the California Coastal Commission.

For us as artists, it is the synergy of those two photographs that stands as a motivating example of the power of images.

Since we began our project in 1999 there has been a tremendous upwelling of interest in plastic pollution. Although we do not have any way to quantify the effect our work has had, we are glad to be a part of the conversation.

We are proud that San Francisco has taken the lead by banning plastic shopping bags and the use of polystyrene in to-go food containers in 2007; the sale of plastic water bottles on city property in 2014; and polystyrene in packing peanuts, ice chests, dock floats and to-go coffee cups in 2016.

Although there is an overwhelming number of issues that need attention — we will continue to focus on what we, two people, on one beach, can do and make artwork that WAKES US UP!

*Could this unexpected transformation of plastic waste and its poetic potential be counterproductive to the environmental discourse since its is more shocking to see waste on a shore rather than aesthetically revisited in a studio?*

Although we both have graduate degrees in art and have a long resume of exhibitions in the traditional art venues of galleries and museums we have been rewarded by the many non-art venues (offices, hotel rooms, restaurants) who have showcased our work. Over the years we have used street-side windows to catch passersby and reel them into the mystery of art and have worked with institutions like The Marine Mammal Center to develop educational displays for school field trips. In a public place, people who may have had little art experience might discover by accident a thought-provoking visual experience. We were heartened, when at a stop light, we pulled up to a bus that was displaying our photographs in conjunction with the Coastal Clean Up Day ad campaign. Untold numbers of people saw those images while driving — that is big visibility with maximum impact.

<http://plasticforever.blogspot.com/2010/09/blog-post.html>

We love solving real-world problems with real-world solutions. We "play well with others" and enjoy collaborating with creatives of all types: scientists, engineers, designers, instigators and artists. We are grateful that we have had invitations from such esteemed institutions as the California Academy of Science and the Oakland Museum to help them to shape artful educational displays for their audiences.

Artwork on a wall has a significant place in our personal history, but 15 short videos have brought forth a storm of feedback and connections from consumers and our growing cohort of ocean-born plastic collectors who have seen our work on the web. In 1996 when we began collecting in earnest (individually) and 1999 (together), when we talked about plastic pollution—we were met with skepticism. Twenty years later this problem is generally accepted, entering the top-ten list of environmental disasters. We are heartened to imagine that our work appearing on National TV (Travel Channel, The Today Show and PBS) and National TV in Japan, has had a small part to play in this awareness. More than anything, videos on the web, views numbering in the 100's of thousands, has had the greatest effect of bringing our work into the emergence of the noosphere.

## Interview with Kelly Jazvac, the Plastiglomerate as Found Object

Kelly Jazvac is a Canadian artist based in London, Ontario. In one of her recent exhibitions she presented plastiglomerate stones as found art objects. These finds resulted from a collaboration between Jazvac, geologist Patricia Corcoran and oceanographer Charles Moore.

Plastiglomerate was discovered in Hawaii in 2006 by Charles Moore from the Algalita Marine Research Institute in Long Beach, California. These plastic stones have been formed primarily over the last few decades and are still being involuntarily "made" today by people burning plastic litter which then camouflages within the beach substrates. They are actually very difficult to distinguish from natural rocks or pebbles and are a fusion of natural and manufactured materials. Because scientists define rocks as things formed by natural processes, these new materials are labeled as stones. Melted plastic debris binds together sand, shells or driftwood or penetrates into the cavities of larger rocks to form a rock-plastic hybrid. The plastiglomerates are being used as evidence for our being in a new geological period, the Anthropocene.

*Can artists play a role in confronting the plastic pollution problem?*

"Art can play a role in confronting climate change. In addition to the important and simple act of starting discussions, art can help to visualize things that are very hard to visualize. My art practice and plastiglomerates express both the permanence and the disposable."

She incorporates materials that seem temporary like a single-use plastic item but then transforms it through her art intervention into something that will last longer. Plastiglomerates do the same; the plastic melts around the sand, shells and other natural elements and becomes a modern fossil.



© Kelly Jazvac, Plastiglomerates

"Art can be adept at crossing disciplines and make things uncomfortable, even if it is just for a moment, and ask us to confront our delusions and presumptions".

Interview with Julia Barton, Littoral Art Project, Shetland Islands, Scotland, UK.  
littoralartproject.com

Julia Barton is a visual artist whose work is rooted in sculpture; she makes artworks that reflect her experience of the culture and nature of a place. Her practice ranges from permanent land-art to temporary installations that aim at drawing attention to our wasteful society.

In 2013 she set up the Sci-Art project on the nature and volume of beach litter. Central to her practice is encouraging communities to witness her findings. Her new multi-media exhibition "NEO TERRA" is the result of 3 years work on the beaches of Scotland.

"A big aim of mine is to inspire young people to creatively tackle the massive environmental issue of plastic pollution in our marine and coastal environments".

Students participating in one of her projects called "Return to Sender" were encouraged to investigate the various litter items and to draw an identikit in order to learn as much as possible about the manufacturer, retailer, brand, etc. With this information they drew up visual letters, Facebook messages and Tweets and sent them to the manufacturers and retailers they had identified in order to ask for their help in reducing packaging and encouraging recycling.

A new material has recently come up in Julia Barton's art practice; plastiglomerates. These lumps of melted plastic are now common on some beaches as people turn to burning the increasing volumes of plastic waste which accumulates on beaches. Julia Barton is constructing a floor installation with these plastiglomerates. She has also recently written and produced The Guide to Beach Litter, a useful informative tool with 40 color images on the most frequently found plastic litter on beaches around the U.K. The reverse side answers a series of questions and provides useful information for taking action. Yet another example of dedicated art practice with a pragmatic and creative approach to this omnipresent problem.

*When did you start working in the field of ocean plastic waste? Compared to the materials you used to find at the beginning of your research is there a difference with what you find today?*

I started art practice in the field of marine plastic in 2013. The majority of materials were and continue to be made from plastic. Each year there is a greater amount apart from the beaches regularly cleaned.

*What kind of plastic waste can be found in your environment (bottles, bags, fishing nets..) ?*

I work on beaches in Shetland and the North West Highlands coastlines in Scotland. The majority of plastics on these beaches are from commercial fishing e.g. ropes, nets, etc. and from aquaculture farms such as mussel pegs, fish boxes, crates, etc.

*Do you collect these objects personally or do you also ask other people to gather them for you?*

I collect the objects personally and encourage people to join me informally or on organized events such as beach cleans and beach surveys.

*Is there a first choice already made on the beach or does it happen only afterwards in your studio?*

Over the last four years I have been investigating beach/marine litter and I have become very selective about the materials I collect and use in my installations- at present this mainly consists of taking sand examples to analyze for plastic particles and plastiglomerate samples.

*What kind of poetic/aesthetic approach do you have with the objects you collect: they bring up memories, they have an immediate visual impact on you, they fit with your project?*

Aesthetically, the plastic litter objects and fragments of litter I collect are purposefully those that are desaturated of color and less visible. To intrigue people and encourage them to look closer and work at understanding that they are the result of marine action on plastic and its extent and significance. It is the altered state and the conceptual weight of both that fits my approach.

*What weights more in your works: the modern creative archeology aspect or the engaged outcry against marine pollution?*

Both are equally important, I have written about the significance of future geological Deep Time\* and engage in social media to add weight to campaigns about plastic pollution. I will be exhibiting my findings in the Scottish Parliament in autumn.

*How do people react to your works?*

*Is their first reaction an aesthetic one or are they more concerned with the ecological aspect?*

*Do you get feedback on more awareness from the public after they see your work?*

With feeling and amazement about what my works reveal on our actions and the increasing problem that plastic causes if it isn't kept within the economy and is allowed to leak into the environment. Central to this particular work of mine is raising awareness about the issue and encouraging discussions as to how we can change our collective behavior and move towards more sustainable ways of living.

My approach in using less obvious marine plastic is to intrigue and to encourage audiences to look. I have done this through setting up a scientific observational and interactive installation area. I like encouraging audience members to discover what is happening alongside with me.

*Could this unexpected transformation of plastic waste and its poetic potential be counterproductive to the environmental discourse since its is more shocking to see waste on a shore rather than in an art gallery?*

There is always a danger of this happening but my early experiences of walking on litter strewn beaches is that many people become overwhelmed by the problem and feel it is too big to deal with or they are so used to seeing it that they zone out and don't perceive the litter any more. By making and showing simple cubes ( COP cubes/LITTER cubes) of specific plastic waste items e.g. mussel pegs, strapping, cotton bud sticks on plinths in a gallery is aesthetically appealing but equally shocking especially alongside the timeline of how long these plastics last and the carbon content of each. Responses to my NEO TERRA map installation constructed out of plastiglomerate pieces showed that the shock element can still be achieved in a gallery setting even when audiences are drawn to the beauty of a piece, it seems it can make it even more chilling.





Julia Barton NEO TERRA , © Shetland Museum and Archives

\*Deep Time is the concept of geologic time. The modern philosophical concept was developed in the 18th century by Scottish geologist James Hutton. According to this concept, modern scientists believe that the age of the Earth is around 4,55 billion years.

## Interview with Jean Michel Faudemer, Galerie 3F, Paris

Jean Michel Faudemer was born in Normandy, France into a family of blacksmiths. From the age of 23 he travelled for many years for his profession but at 40, a walk on a beach brought for him a resurgence of his childhood memories made of wrought iron and steel scraps. A few pieces of scrap iron found on the beach reveal to him his hidden talent, he is an assembler. A new journey starts and he develops different techniques and uses different found materials, one of them is also plastic. His constant leitmotif is recycling and regeneration of objects found in nature and their use as medium as they are found so as to respect their story.

Jean Michel Faudemer steers his art practice between figurative and abstraction. In his latest exhibition (Mer et Ciel, 2016), he further develops his artistic discourse on the rehabilitation of sea litter. With his collages he travels through imaginary landscapes where found sea plastics are used to conjure up the four elements; water, air, fire and earth. The tiny boats in the middle of his seascapes symbolize the fragility of man facing the universe and a journey in afterlife.

He says that this journey is also representative of the need to meet the other in his diversity and not to fear and reject.

*When did you start working in the field of ocean plastic waste? Compared to the materials you used to find at the beginning of your research is there a difference with what you find today?*

I started with collecting marine plastics some ten years ago, before that I used to collect other materials on beaches- I started with rusted iron scrap and parts of wrecked boats then driftwood and seeds and pods and then came plastic.

*What kind of plastic waste can be found in your environment (bottles, bags, fishing nets..)*

I collect all kind of plastics as long as they strike me in terms of colors, shape, texture, degree of "degradation ". There must be a spark between us!

*Is there a first choice already made on the beach or does it happen only afterwards in your studio?*

The objects can be clearly identifiable or just amorphous litter, this is of little importance to be because I often intervene quite radically and cut them into pieces to take the part that interests me.

*Do you collect these objects personally or do you also ask other people to gather them for you?*

I collect the objects personally, I don't like them being given to me because the relationship generally starts on the beach without really knowing beforehand if that specific object will be really used in a work or not. I make a first choice on the beach and then I sort the material in my studio according to the specific theme or series I am working on at that time.

*What kind of aesthetic approach do you have with the objects you collect: they bring up memories, they have an immediate visual impact on you, they fit with your project?*

The found objects have a special resonance for me without having to fit necessarily in a specific project. Sometimes I pick them up simply because I like their shape, color, texture knowing that perhaps one day they will be used in a specific project. However, in a series titled "Megalopolis" inspired by imaginary cities, what I was specifically looking for were oblong objects to convey the shape of skyscrapers and in another series called "Meli Melo" I used only remainders of objects, privileging the forms and obliterating any hint to consumer goods.

*What weights more in your works: the modern creative archeology aspect or the engaged outcry against marine pollution?*

At the beginning my works were a sort of playful and ludic diversion but then they invaded my life and I started recovering abandoned objects and materials, the leftovers of consumer society and often a nuisance to the environment. Through my work, I now try to make people aware that the production versus consumption cycle must not be an end in itself and that it isn't certainly what life is about.

In my compositions there is an explicit search for refinement and aesthetics because I mean to demonstrate that even with such an obnoxious reality as beach litter, it is possible to create something attractive and pleasant to look at and at the same time

raise the viewers' awareness about the environment. Beyond this, I wish that my works stimulate a deeper and philosophical reflexion on our way of life.

*How do people react to your works?*

*Is their first reaction an aesthetic one or are they more concerned with the ecological aspect?*

*Do you get feedback on more awareness from the public after they see your work?*

At the beginning the approach of the public is mostly aesthetic and not everyone realizes immediately that my works are made of plastic litter. Often I have been asked if add some colors by painting the found objects. Only at a second glance, when the viewer realizes what materials I use and when I explain that I pick it up on beaches, does the conscience about the environment emerge and starts a more specific discussion about pollution and the environment.

*Could this unexpected transformation of plastic waste and its poetic potential be counterproductive to the environmental discourse since its is more shocking to see waste on a shore rather than in an art gallery?*

I have actually often thought that the search of a form of beauty in the ugliness of pollution was an attenuation of the damage caused by it and a softening of its visual effects for it is a shocking view in terms of the deterioration of the landscape and the impact it has on plants and animals. But I am by nature someone who likes to embellish my environment and to do more with less in my life as well as in my art practice.

Sometimes people tell me that I am a beach cleaner and in a sense I agree but my answer is that I hope one day to run out of materials for my works which would mean that there would be no littered beaches any more. I see this as a fight against ugliness- as a positive force fighting against the negative and not only from an artistic but also from a human point of view. It is a fight between the Creation ( and artistic creation is part of it) and Destruction, a real combat between Life and Death.



©Jean Michel Faudemer

Interview with Tuula Närhinen, Finnish artist, Mermaid Tears, 2007; Ocean Plastic, 2008

Tuula Närhinen is a visual artist based in Helsinki, Finland.

Her topics are landscapes, natural phenomena and environmental issues. She works on traces; left by the wind (Windtraces, 2000), the sea (Surf, 2001), the sun (Solarium, 2004), and animals (Tracing Animals, 2005). Her works Mermaid Tears and Baltic Sea Plastic witness of traces left by our plastic civilization on the environment. Mermaid tears is a term which once used to indicate glass sherds found on shores but nowadays it is used to define resin pellets or nurdles used in the manufacturing of plastic products which are a minor source of pollution on beaches. Närhinen launched the idea to use these beads in the creation of jewelry in order to encourage people to pick them up and clean beaches.

*When and why did you start using ocean plastic as an art material?*

In December 2006 I read an article in the local newspaper about plastic resin pellets also known as mermaids' tears. That is when I started using plastic debris in my works.

*Where do you get your material from?*

My environment is the Harakka island where my studio is located. On its beaches one can find any kind of plastic debris from bottles to fishing nets and plastic bags. Lately I have found also pieces of Nonel shock tube detonators that are made of plastic. Nonel are plastic shock tube detonators generally used for the purpose of demolition of buildings and for blasting of rock in mines and quarries. They are produced in Sweden.

*Do you make a first choice of your material on the spot and what makes you chose them specifically?*

I collect all my materials personally and have no assistance and I make a first choice in situ on the beach when I decide which items I will pick up.

Mostly I gather objects that fit the ongoing project and in my choice there is no nostalgia attached to the objects. Sometimes their color is important and that is why I choose it.



In my works, I do not wish to convey only one message or interpretation. I do try to put some humor in my works and to have also a playful attitude in reusing beach litter and reinventing them my way.

*How do people react to your works?*

People see beauty in the plastic objects I put together out of waste but at the same time they do realize the dangers that plastic pollution presents to the marine environment.



Baltic Sea Plastique, 2013 © The Artist

*Is plastic waste ending up in a gallery still useful to denounce the environmental problem?*

I don't think that the transformation of plastic waste into art works is detrimental to the environmental campaigns. For the first, normal people visit only very selected parts of the seashore like the sunny beach or the urban marine promenade. These places are cleaned regularly but 99,9% of the remaining seashores remain unvisited. I really believe that artistic approaches in this field can offer more efficient ways to explore the magnitude of the problem.

Interview with John Dahlsen, Australian environmental artist, Byron Bay, NSW, Australia. His works reflect on the role of the environmental artists and art practice in the opening decades of the 21st century.

*When did you start working in the field of ocean plastic waste?*

*Compared to the materials you used to find at the beginning of your research is there a difference with what you find today?*

My creative medium shifted from painting to working with found objects as a result of an artistic accidents in the 1990's. I was collecting driftwood with the intention of making furniture and stumbled upon vast amounts of plastic ocean debris. Since then for approximately 20 years, I scoured Australian beaches for washed up ocean litter and have since discovered that this is a worldwide phenomenon, affecting beaches on a global level.

*Do you collect these objects personally or do you also ask other people to gather them for you?*

I have bent over thousands of times to pick up the many pieces of plastic debris that make up my works. Each piece jostled around for an unknown duration by sand, sun and ocean, their form altered, faded and rounded by the elements.

*Is there a first choice already made on the beach or does it happen only afterwards in your studio?*

I bring the plastic back to my studio to sift, sort and color code for my assemblages. I am fascinated by the way they have been modified and weathered by the ocean. I am constantly surprised by the brilliance of the colors and textures available to me in working with this medium. Imagine plastic bags, which mostly have a life a lifespan of many years and are possibly facing extinction since many governments are beginning to impose deterrents to people using them. In the meantime I am able as a contemporary visual artist, to use these recycled materials and create art works which I hope express a certain beauty, as well as containing their own unique environmental messages.

*What kind of poetic/aesthetic approach do you have with the objects you collect: they bring up memories, they have an immediate visual impact on you, they fit with your project?*





© John Dahlsen, Blue Rope

My challenge as an artist is to work with found objects and make them tell their story including the underlying environmental message inherent in the use of this kind of medium. Through using intuition and personal aesthetic judgments, the objects themselves start to tell their story and become transformed into artworks. Most

importantly, the assembled objects bring to life my commitment as an artist to express social, spiritual and environmental concerns.

*What weights more in your works: the modern creative archeology aspect or the engaged outcry against marine pollution?*

I believe art to be my spirituality and what happens with my art generally runs parallel to my life and challenges in my personal life help me to extend myself more as an artist. This is how my work is in a constant state of evolution which I largely see as an alchemical one. It is the process of nature's elements redefining the man-made that creates the initial alchemy, taking the objects beyond the mundane.

*How do people react to your works?*

*Is their first reaction an aesthetic one or are they more concerned with the ecological aspect?*

*Do you get feedback on more awareness from the public after they see your work?*

I am sharing a positive message about beauty and the aesthetic experience. I am also offering examples of detritus recycle and reuse. I hope that this work encourages those who experience it to look at the environment in creative ways. People have expressed to me an awareness that manifests after seeing my found object artwork, when they walk the beach they feel awakened by possibilities. I entrust the final alchemy of my work to the viewers with the possibility that they may experience perceptual shifts and have a positive aesthetic experience. I will always hope that my work will act as a constant reminder to walk gently on the planet.

## Interview with Andy Hughes, art photographer and member of Surfers Against Sewage

In his art photography, Andy Hughes encourages viewers to question the nature of materiality in relationship to waste with his monumental photographs of plastic bottles and cups washed ashore. He started working with plastic in 1989. In 2003 he was part of a team of international artists and scientists to work on a unique project- Gyre: The Plastic Ocean to explore the integration of science and art to document the issue of plastic and human waste in the marine and coastal environment.

*How do people react to your works?*

*Is their first reaction an aesthetic one or are they more concerned with the ecological aspect?*

The reaction depends on the audience- the subject of plastic is popular at the moment. So audience range from an "eco-warrior " who knows nothing about art and art history or an NGO who might seem to understand art and art related activities (but often don't really) to the reverse. Some people in contemporary art don't like "issue based practice".

It is difficult to measure if public awareness has risen after viewing my photographs, it really depends on the public.





© Andy Hughes

*Could this unexpected transformation of plastic waste and its poetic potential be counterproductive to the environmental discourse since its is more shocking to see waste on a shore rather than in an art gallery?*

This is a good question, the same goes for this- could the depiction of conflict, famine and war and its poetic potential be counterproductive to the political discourse since it is more shocking to see dead bodies rather than aesthetically revisited in a gallery.

## Interview with Aurora Robson, Project Vortex

Aurora Robson is a Canadian born multi-media artist known predominantly for her work intercepting the waste stream. She is the founding artist of the Project Vortex, an international collective of artists, designers and architects who work with ocean plastic waste and donate half of their profits to clean-up campaigns and organizations.

She has also developed a college course called "Sculpture + Intercepting the Waste Stream" designed to foster creative involvement and environmental consciousness in academic institutions.

*What kind of approach do you follow in creating your works?*

My purpose is to reimagine the world as an inhabitable place and reimagine artists' roles as visionaries. I like the challenge of taking objects that are considered useless or without potential and transform them.

Artists have historically served as the eyes of society. The impulse of making a work of art is exactly the opposite of the impulse of throwing something away. My goal in making art is to give people an opportunity to reflect on their own perception of value. Waste is merely displaced abundance. Giving thought and attention to matter is what makes something a piece of art and not a piece of trash.

*When did you start working in the field of ocean plastic waste? And why?*

For the past decade I have been working with plastic as an art medium. The initial reason why I started working with plastic was not an environmental one. I was fascinated by its formal and structural qualities and the fact that it was relatively unexplored as a viable art medium. It was only later that I became aware of the plastic waste problem in the ocean.

Almost everything we come into contact with is wrapped up in a clear, thin, sheer plastic membrane. A PET plastic bottle is made to last from a hundred to a thousand years when it is left in our natural environment. That means that it has archival integrity. I choose the materials usually because they are things that people don't care about.

*How do people react to your works?*

A lot of my work with plastic waste is suspended because I try to shift people's perception of litter which you normally look down to and make them look up and become more receptive.

My sculptures are mainly made of PET bottles(up to 15.000) which are not kept in their original color but tinted with water-based colors. What inspires me for my sculptural works are mainly organic forms which I reinterpret and reinvent.

*How would you define your works and how are they perceived by the public?*

To me, my work isn't abstract at all although most people perceive it like abstract. I take this material which nobody cares for and imbue it with such care and attention that it resonates. I like to work specifically with debris that causes environmental issues to help illustrate how artists can address this and other societal problems through art.



© Aurora Robson

## Conclusion

The artists I have interviewed seem to have entered in contact with ocean plastic litter through different encounters either made by chance or because of their interest in environmental questions. They were all driven by a curiosity in the material and an ingenuity of mind that led them to take different paths in their art practice. The beach functions as an arts supply shop where they generously serve themselves of all the material they need to produce their works. By picking up useless objects the artists automatically add new value and life to them; the objects retain their status of waste but at the same time they catch our attention and make us think.

First of all, I noticed from the interviews that there are some similarities and some differences in the intentions and approaches these artists have in collecting ocean plastic waste from the beaches. There are those like Aurora Robson and Julia Barton who tend to involve more people in the process of gathering material, this is because they tend to associate their work to pedagogical projects and aim to involve especially young people and students. Others like Jean-Michel Faudemer and Tuula Närhinen who collect all their materials personally and have no assistance. It is as if they want to be those who make the first choice on the beach and chose those items which inspire them. Most of the artists interviewed pick up the material and bring it to their studios in order to work on it. However, Andy Hughes has this particular approach as an art photographer to immortalize the image of plastic trash on the spot, but leaves it there and takes no further action.

Strangely enough, while searching for artists to interview using plastic waste, many sculptural works came up as realistic representations of the marine wildlife, as if the artist made an unconscious connection between the underwater environment and plastic. This is partly true for Aurora Robson and Tuula Närhinen, while the others seem to have more detachment and an abstract association to the context.

What I learned from the artists I interviewed is that each and every one of them with their specific personality are able to make us look at plastic waste with different eyes and with their works influence our behavior in the future.

# Part Three

## Personal Project

“Underwater Bar”

Artistic appropriation of plastic waste for raising consciousness on plastic pollution at sea





Aghia Kiriaki is a small fishermen's village in Southern Pelion, Greece. It is uncontaminated by mass tourism and estate speculation and its coastal landscapes are beautiful. I have been spending all my childhood summer holidays there and am well integrated in the village community.

I started to take diving lessons in my teens and ever since continued to practice every summer. What struck me from the start was the incredible beauty of the seabed, scarred by the debris dumped unconcernedly. Environmental consciousness has started only recently to develop in Greece and older generations who experienced consumerism after decades of poverty after the war, were easy prey to cheap, plastic throw-away products which often came to replace more traditional ones.

Kostas Kondos and Merryn Wainwright are professional divers and have a diving center in Aghia Kiriaki.

They have a deep knowledge of the Mediterranean Sea and of its biodiversity as well as an exceptional experience in deep sea archeology.

Merryn has been of extraordinary help in setting up my project and in locating the ideal spot for the installation.

By combining my diving skills with an eco conscious art practice I started a small-scale project in summer 2016 which tries to draw the attention of the local community to the problem of marine plastic pollution. Last year, I simply gathered a few objects I found on the bottom of the sea and set them up in a small scenario. This prompted me to explore further possibilities regarding installations. Last year's work was swept away and I decided to start again this year. We only see the plastic on the sea surface or on the shores but there is as much of it underwater. That is what my installation aims at showing -what lies under the sea and is unseen, bearing in mind what Duchamp wrote about "other kinds of art- which are far less concerned with pleasing the eye than with deepening the way we think".

The beauty and quietness of the submarine environment are breathtaking - one enters a different dimension with slower rhythms and softer colors which change depending on the depth and the transparency of the water. Although this natural beauty is in striking contrast with the garbage deposited on the sea ground, the colonies of algae and sea anemones covering it are almost capable of embellishing its ugliness.

Sometimes I come across such strange objects that I cannot resist the temptation to bring them up to the surface. For example, I found this paint brush and stick solidified in the left-over varnish, where the tin can has probably rusted away, consumed by the sea. It reminded me of a suspended action, as if time had stopped the moment this can had entered the sea.



Found Object, -25 meters © photo Julia Ganotis

In my diving sessions, I come across anything from car batteries to tires, fishing nets, crates, plastic chairs, paint tins and brushes, etc. I decided to make an underwater installation with all this debris, representing our leftovers in a sub-marine context to show what lies down there in the apparently blue and transparent sea.

The installation I am presenting is located at a depth of -22 meters on a sandy platform at the bottom of a stiff marine cliff. This geological conformation apparently gathers debris which rolls down this cliff and is deposited at the bottom. The chairs,

table and other plastic material are covered with a velvety layer of algae which give the objects a soft appearance. After a first fact-finding dive to explore the surrounding area, other four dives were necessary to compose the installation and make the video. I had to consider the undercurrent which was quite strong at times and wait for the adequate light and visibility to take the pictures since the sandy ground, if stirred reduced the clarity of the water.

This project idea started last year, initially as an exercise we did in order to pass the scuba diving second level.

Greece appears to be in a pretty concerning situation when it comes to the environment. Unfortunately there is a considerable lack of ecological consciousness and an impressive nonchalance regarding the future of this planet. Diving there for about ten years, I had the opportunity to visit a variety of submarine landscapes and to see what the situation is regarding underwater pollution. Sometimes it is terrifying, whereas other times we dare to hope that some places have it better. Under these circumstances, I grew a feeling of serious concern throughout the years and felt the need to act; this is why I wanted to include this installation as part of my thesis.

Merryn Wainwright is a professional diver and a friend and she helped and accompanied me during the making of this installation. I was pleased to learn that she was very excited about the project and contributed with her point of view which I will mention as I explain the project.

Underwater, things become trickier than on the ground: it takes time to move something, we are slower, we work with a different gravity and we have a limited amount of time and air. Thankfully, ironically speaking, the place where we set up the underwater bar has plenty of material to use- there was a wide variety of plates, mugs and glasses, branded cans, chairs, sandals, rain boots, scales, tires and the list goes on. I wanted to create a familiar scene, something we are acquainted with and experience frequently such as sitting around a table. There is, in my opinion, something quite unsettling about seeing man made creations sink on the bottom of the sea, annihilating the superiority we think we have overground.

We set a few chairs around a small table we found, added some bottles on it and accompanied them with plates and a small pan. To make it seem as if somebody had rested there, we put a pair of gummy rain boots next to a chair. It is very unusual to find a pair of shoes underwater, usually you find only one but these we found sitting one next to the other. On the far left, we put an old school scale and added a white mug and a glass bottle. Since colors tend to disappear as one goes deeper, we were

trying to find objects that had specific tones such as white, green, yellow and blue. We found a few objects that had a bright color such as a few mugs, a metal lid on the pan which is on top of the scale, the patterned, plastic table cloth and a bright yellow plastic sunflower. With these elements, the whole picture brightened up and was more visible. To add a background, we brought some tires from around a nearby shipwreck and put them one on top of the other- the process was tedious and rather tiring as some of the tires were filled with sand and embodied on the sea ground. Nevertheless, the whole process was very playful and my diving companion enjoyed following my instructions on how to construct the installation. Given the considerable depth, only qualified divers will be able to go that deep and see it which restricts the amount of views it would have but it also brings a different type of audience to experience it.

“Divers tend to have a different background, which is an athletic one and their interest is more targeted towards the sporty aspects of diving” says Merryn.

Those who are more artistically inclined are quite rare, which means we have the fortune to bring two worlds together and raise curiosity and interest in a public that might not be usually frequenting the art field.

The film and photographs I have taken, record all the different phases of the making of the work from how I left it one year ago to now after a new intervention. I have sent the photographs of the installation and a short article to the most read online newspaper in Greece, [i-efimerida.gr](http://i-efimerida.gr), with the purpose to raise awareness and show what lies underwater right there and how the ocean plastic problem concerns everybody from local to global level.

The initial idea was to bring the material of the installation to land and sort it out for recycling purposes but in discussing with Merryn, we had the idea to keep it there and use it as a reference location on her map of sites for other divers to see it.





photos Julia Ganotis

## Conclusions

The process of research for the thesis and the interviews with these artists allowed me to accept the possibility that such ungraceful material such as plastic waste in the ocean could be a tool for artistic work.

However, they all recognize that the plastic problem is so vast and global that it is difficult to see how we can possibly do anything to change the situation, but we can raise awareness about it. Their artistic contribution is an important signal launched to our societies to become more self conscious and receptive of our responsibilities and behavior. Simple changes in our everyday life mean that we can all contribute to reducing the amount of plastic waste in our oceans and to reuse existing plastic in more productive ways.



Plastic is generally embedded in our everyday life and can produce both hope and fear: from medical innovations to nanotechnology, this durable material has helped human life for the better. But plastic is also a source of fear since as soon as plastic objects become waste, they start to be a menace and we want to get rid of them. This sense of fear is particularly present with ocean plastics. Climate change has been widely debated and has become part of our environmental awareness whereas ocean litter is a relatively less known phenomenon in terms of true extent of its impact on fauna, flora and human health. By using it as a material, these artists draw public attention on its existence and at the same time engage in an artistic appropriation of the waste produced by our consumers' societies.

Discarded materials and objects are the contemporary fossils that nourish the creative thrust of artists and stir up the innate capacity of man to imagine. Trash, garbage, rubbish, detritus: the products of our globalized societies witness who we are and how we live. The found object is a fragment of everyday life becoming part of a new reality which depending on the artist's purpose and inspiration can be oneiric, disruptive, debunking or denouncing.

The magic of this art practice consists in transforming physical trash into poetic images and in making us realize that what we are looking at is not garbage but poesy. Most of the interviewed artists have a working practice and methodology that entirely respects the original shape and colors of the ocean litter they collect and in so doing allow us to see that nature has intervened and modified plastic. They take up from there with their art works and it is as if they entered into a sort of communion with nature.

My own experience in working with ocean plastic waste has been thrilling and enriching and I am hopeful that I will be able to further develop this professionally and in my art practice.

If the viewing public experiences a shift in their awareness and is moved to act after being exposed to the works of ocean plastic artists, then all the labour and the intention in their artistic processes would be amply justified. Art and activism together are urgently needed to boldly promote consciousness shifts around the health of our planet.





Underwater Bar, installation



## **Acknowledgements**

I would like to express my thanks to the artists who generously took some of their time to answer my questions and give me a precious insight of their art practice, especially: Julia Barton, John Dahlsen, Jean Michel Faudemer, Tuula Närhinen, Andy Hughes, Kelly Jazvac, Aurora Robson, Judith Selby Lang and Richard Lang.

I am very grateful to my tutor, Taina Rajanti, for her support and advice.

Special thanks to Merryn Wainwright and Kostas Kondos for their advice and assistance in diving.

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## Glossary

From [en.oxforddictionaries.com](http://en.oxforddictionaries.com)

**Bakelite:** an early form of brittle plastic, typically dark brown, made from formaldehyde and phenol, used chiefly for electrical equipment.

**Celluloid:** a transparent flammable plastic made in sheets from camphor and nitrocellulose, formerly used for cinematographic films.

**Formica:** a hard durable plastic laminate used for workshops, cupboard doors and other surfaces. 120's (originally U.S.) of unknown origin.

**Formaldehyde:** a colorless, pungent gas in solution made by oxidizing methanol. Origin- late 19th century, blend of Formica acid and aldehyde.

**Formol:** another term for formalin. A colorless solution of formaldehyde in water, used chiefly as a preservative for biological specimens.

**Nitrocellulose:** a highly flammable material made by treating cellulose with concentrated nitric acid, used to make explosives and celluloid.

**Phenol:** a mildly acid toxic white crystalline solid obtained from coal tar and used in chemical manufacture.

**Polyester:** a synthetic resin in which the polymer units are linked by ester groups, used chiefly to make synthetic fibers.

**Polymer:** a substance which has a molecular structure built up chiefly or completely from a large number of similar units bonded together. e.g. many synthetic organic materials used as plastics and resins. Origin- mid 19th century, from Greek *πολυμέρος* "having many parts", *πολύ*- many and *μέρος*- part.

**Polystyrene:** a synthetic resin which is a polymer of styrene, used chiefly as lightweight rigid foams and films.

**Polythene:** a tough, light flexible synthetic resin made by polymerizing ethylene, chiefly used for plastic bags, food containers and other packaging. Origin-1930s, contraction of polyethylene.

**PVC:** polyvinyl chloride, a tough, chemically resistant synthetic resin made by polymerizing vinyl chloride and used for a variety of products including pipes, flooring and sheeting.

**PET:** polyethylene terephthalate, saturated polyester used for food packaging and water bottles. PET bottle.

**POP :** Persistent Organic Pollutant

**Silicon:** the chemical element of atomic number 14, a non-metal with semiconducting properties, used in making electronic circuits. Pure silicon exists in a shiny dark grey crystalline form and as an amorphous powder. Origin- early 19th century, alteration of earlier silicium, from Latin *silix*- silicon, flint, on the pattern of carbon and boron.

**Vinyl:** synthetic resin or plastic consisting of polyvinyl chloride or a related polymer, used for wallpaper and other covering materials and for gramophone records.

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# 9 TIPS FOR LIVING WITH LESS PLASTIC

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1 Bring your own shopping bag
- 

2 Carry a reusable water bottle
- 

3 Bring your own cup
- 

4 Pack your lunch in reusable containers
- 

5 Say no to disposable straws & cutlery
- 

6 Skip the plastic produce bags
- 

7 Slow down and dine in
- 

8 Store leftovers in glass jars
- 

9 Share these tips with your friends

LESS PLASTIC.



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It's #WorldOceansDay - what can you do to #uselessplastic?

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253
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